

PROCESS FOR ELECTROPLATING METALS
INTO MICROSCOPIC RECESSED FEATURES

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10 ABSTRACT OF THE DISCLOSURE

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Several techniques are described for reducing or mitigating the formation of seams and/or voids in electroplating the interior regions of microscopic recessed features. Cathodic polarization is used to mitigate the deleterious effects of introducing a substrate plated with a seed layer into an electroplating solution. Also described are diffusion-controlled electroplating techniques to provide for bottom-up filling of trenches and vias, avoiding thereby sidewalls growing together to create seams/voids. A preliminary plating step is also described that plates a thin film of conductor on the interior surfaces of features leading to adequate electrical conductivity to the feature bottom, facilitating bottom-up filling.